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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/905,436	07/13/2001	John Teloh	SMQ-082/P6396	3431
959	7590	05/23/2005	EXAMINER	
LAHIVE & COCKFIELD, LLP. 28 STATE STREET BOSTON, MA 02109			LE, HIEU C	
			ART UNIT	PAPER NUMBER

2142

DATE MAILED: 05/23/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/905,436

Applicant(s)

TELOH ET AL

Examiner

Hieu c. Le

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 3-36-05.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-45 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-45 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

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1. The amendment filed 3/26/05 have been entered and made of record.
2. The Applicant's argument filed 3/26/05 have been fully considered but they are not persuasive for the following reasons:

As for claims 1-4,6 & 1-20 Applicant alleges that "Sicola does not disclose instructing a first data [,]" (p. 2, line 21-p. 3, line 14). The Examiner disagrees. The applicant's conclusion that the information grouped in the association set requires the inclusion of information from the remote location and if a primary controller serving associated LUNs fails, the set of LUNs in the association set fail over together to the secondary controller or vice versa, therefore an association set consist of pairs of volumes formed by local volume and a remote volume located on a single remote target is wrong for the following reason:

Firstly, nowhere in Sicola, the features are cited. Secondly, the remote copy set is a pair of same data (minor data see col. 6, lines 1), one on the local array and one the remote array (col. 8, lines 51-57) and because the pair are the same data, there is no requirement for inclusion of information from the remote location (both pairs on the local and remote array are mirror of each other and no data in any one is different from the other). The contents of the local array 203 is immediately copied to remote array 213 is immediately copied to remote array 213 and is ready to use as a backup (col. 9, lines 1-6) i.e a first set of volume data is replicated and the replicate is sent to multiple remote data volumes.

As for claims 7,9,11-15 & 17 Applicant alleges that "Silica does not antipate [,]" (p. 3, line 24-p. 4, line 8). The Examiner disagrees. Firstly, Silica shown in Fig. 3 shows

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(computer) to a remote host (computer) for simplicity reasons each site depicts only on host (computer) per site (col. 8, lines 1-2). However, Fig. 2 is a detailed figure for Fig. 2 which shows each site has two hosts (computer), two computers 101,101A in storage site 218 and two computers 102,102A in the storage site 219. Also, Fig. 1 show the mirroring (replication) when a host computer 101, sends backup copy of the data to a remote node. The node can be a single host (computer) or multiple host computers exist at the node (col. 17, lines 31-33). I.e. Sicola replicates data volumes from a first computer to one or more other computers at a remote node.

As for claims 22,24-28 and claim 30 . Applicant argues the same arguments that is fully addressed above.

As for claims 31, 32 & 38 . Applicant argues the same arguments that is fully addressed above.

Claim Rejections - 35 U.S.C. § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351 (a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 1-4,6-7,9,11-15,17-20,22,24-28,30-32,38-40 are rejected under 35 U.S.C. 102(e) as anticipated by Sicola et al. (US Patent 6,629,264).

As to claim 1, Sicola discloses in a storage network (col. 7, lines 1-14), a method for replicating a first data volume from a first computer to a plurality of remote data volumes stored on one or more remote computers (col. 6, lines 14-25, Fig 1), said method comprising the steps of:

instructing a first data replication facility at said first computer to replicate said first data volume and to send the replica to multiple remote data volumes [(col. 20, lines 38-55) where LUN is logic data volumes].

in response to the instructing, generating a replica of said first data volume from the first computer at the first data replication facility (col. 8, lines 1-13, col. 9, lines 1-5); and

forwarding the replica from said first data replication facility at said first computer said to the plurality of remote data volumes stored on the one or more remote computers (col. 6, lines 1-13, col. 9, lines 1-5).

As to claim 2, Sicola further discloses comprising the steps of forwarding from the first data replication facility at the first computer to said one or more computers information identifying a storage location on a storage device of the one or more the computers for the replica (col. 20, lines 41-44).

As to claim 3, Sicola further discloses plurality of remote data volumes in a synchronous manner (col. 11, line 27-col. 12, line 3).

As to claim 4, Sicola further discloses wherein the first computer forwards the replica to the plurality of remote data volumes in an asynchronous manner (col. 12, line 6-col. 13, line 41).

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As to claim 6, Sicola further discloses wherein the first computer and the one or more computers in the storage network operate without a volume manager facility [a local controller or initiator 301, presents a local volume that is part of the remote copy set to the local host (col. 8, lines 58-63) i.e. there is no volume manager facility is used].

As to claim 7, Sicola further discloses in a computer network having computers, wherein each of the computers in the network hosts a data replication facility for remote mirroring of data between the computers, a method comprising the steps of:

receiving a data volume at the data replication facility of a first of the computers from the first of the computers for the remote mirroring (col. 8, line 52-col. 9, line 7); and

replicating the data volume from the first of the computers to multiple other ones of the computers (col. 6, lines 1-13 & col. 9, line 1-5).

As to claim 9, Sicola further discloses comprising the step of, replicating the data volume from the first of the computers to a plurality of volumes on a second of the computers.

As to claim 11, refer to claim 3 rejection.

As to claim 12, refer to claim 4 rejection.

As to claim 13, Sicola further discloses wherein the data volume is a logical data volume (col. 5, lines 55-58).

As to claim 14, Sicola further discloses wherein the data volume is a physical data volume [the data volume is a plurality of magnetic disk storage device (col. 7, lines 8-12) i.e, physical data volume].

As to claim 15, Sicola further discloses wherein the computer network comprises one of a local area network (LAN), a wide area network (WAN), a virtual private network (VPN), an intranet, an extranet and the Internet [Internet (col. 7, lines 55-57)].

As to claim 17, refer to claim 6 rejection.

As to claim 18, refer to claim 1 rejection. Siloca further discloses a computer readable medium holding computer executable instructions (col. 9, lines 10-34).

As to claim 19, refer to claim 3 rejection.

As to claim 20, refer to claim 4 rejection.

As to claim 22, refer to claim 7 rejection. Siloca further discloses to allow the first network location to perform the remote data mirroring across multiple remote network locations (col. 6, lines 1-2, lines 44-56).

As to claim 24, refer to claim 7 rejection. Siloca further discloses wherein communication between the first network location to the first remote network location occurs in a first communications manner while communication between the first remote network location and the second remote network location occurs in a second communications manner [the communication between the first location and first and remote location is Basic Fibre Channel (col, 7, lines 42-54) and the communication between the first location and second remote location is an Internet link (col. 7, lines 55-58)].

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As to claim 25, refer to claim 3 rejection.

As to claim 26, refer to claim 4 rejection.

As to claim 27, refer to claim 3 rejection.

As to claim 28, refer to claim 4 rejection.

As to claim 30, refer to claim 6 rejection.

As to claim 31, refer to claim 7 rejection.

As to claim 32, Siloca further comprising the steps of:

replicating said replicated data structure at said first of said plurality of remote locations (col. 8, lines 1-13, col. 9, lines 1-5); and

transmitting the replication of the replicated data structure to the second of the plurality of remote locations (col. 6, lines 1-13, col. 9, lines 1-5);

As to claim 38, refer to claim 6 rejection.

As to claim 39, refer to claim 31 rejection. Siloca further discloses a computer readable medium holding computer executable instructions (col. 9, lines 10-34).

As to claim 40, refer to claim 32 rejection.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 5, 10, 16, 21, 23, 29, 33-37, 41-45 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sicola et al. (US Patent 6,629,264) as applied to claims 1, 7, 18, 22, 31, 39 above and further in view of Wilson (US Patent 6,718,347).

As to claim 5, Sicola further discloses the uses of e-ports or the use of a conversion box to convert to telecom ATM or IP (col. 3, line 65-col. 41, line 3). Sicola does not disclose explicitly wherein the communication protocol comprises the Transmission Control Protocol/Internet Protocol (TCP/IP) protocol suite.

Wilson discloses a computer network remote data mirroring system that writes update data both to local data storage and remote system (Abstract). (TCP/IP) protocols are used for communication (col. 32, lines 29-45).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to use Wilson's teachings to modify Sicola's method by using TCP/IP protocol in order to allow the transfer of replicated data to storage system over multiple network paths which would maximize the performance of the system.

As to claim 10, refer to claim 5 rejection.

As to claim 16, Sicola discloses a "host computer" (col. 5, line 41) which could be a server, a workstation, a Pc. Sicola does not disclose explicitly wherein the computers comprises one of a server, a workstation, a "mainframe" and a personal computer.

Wilson discloses a computer network remote data mirroring system that writes update data both to local data storage and remote system (Abstract). The computer is a webserver (col. 7, lines 1-9).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to use Wilson's teachings to modify Sicola's method by using computer that operates as a server in order to maintain coherency between multiple

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copies of a data set in a multi-server environment which could be implemented automatically by the storage system when updates are detected.

As to claim 21, refer to claim 5 rejection.

As to claim 23, Sicola does not disclose wherein the computer network transmission capacity bandwidth between the first network location and the first remote network location differs from the computer network transmission bandwidth capacity between the first remote network location and the second remote network location, wherein the first remote network location operates as a secondary data repository to the first network location while operating as an originating location for the remote data mirroring of the replicated data to the second remote network location.

Wilson discloses a computer network remote data mirroring system that writes update data both to local data storage and remote system (Abstract). The transfer of data between the first computer network and remote computer networks are at different rate compatible with the devices that receive the data in order to prevent significant risk that the data will be lost (col. 16, line 45-col. 17, line 25).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to use Wilson's teachings to modify Sicola's method by transmitting the data at different transmission rates (different bandwidth capacity) based on the ability of the receiving device to pace the data transfer in order to prevent significant risk that the transmitted data will be lost.

As to claim 29, refer to claim 5 rejection.

As to claim 33, refer to claim 5 rejection.

As to claim 34, refer to claim 23 rejection. Wilson further discloses wherein the transmission of the replicated data structure to the first of the plurality of remote locations occurs at a first transmission rate (col. 16, lines 45-55).

As to claim 35, refer to claim 23 rejection. Wilson further discloses wherein the transmission of the replication of the replicated data structure from the first of the plurality of remote locations to the second of the plurality of remote locations occurs at a second transmission rate (col. 17, lines 1-25).

As to claim 36, refer to claim 16 rejection. Wilson further discloses wherein the first location comprises a workstation executing a first operating system (col. 30, lines 11-26).

As to claim 37, refer to claim 16 rejection. Wilson further discloses wherein the first of the plurality of remote locations comprises a server executing a second operating system [web server to provider service to other computers (second operating system) (col. 7, lines 1-38)].

As to claim 41, refer to claim 5 rejection.

As to claim 42, refer to claim 34 rejection.

As to claim 43, refer to claim 35 rejection.

As to claim 44, refer to claim 36 rejection.

As to claim 45, refer to claim 37 rejection.

7. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sicola et al. (US Patent 6,629,264) as applied to claims 1 and 7 above and further in view of Gagnet et al. (US Patent 6,209,002).

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As to claim 8, Sicola does not disclose explicitly further comprising the step of packaging data with the replicated data volume that identifies a storage location for the replicated data at each of the multiple other ones of the computers.

Gagne discloses a data storage facility that mirrors data onto at least three different remote site (Abstract), the replicated data volume is packaged with data that identifies a storage location such as data path (col. 8, line 22-52).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to use Gagne's teachings to modify Sicola's method by packaging data with replicated data volume that identifies a storage location for replicate data at each of the multiple ones of computers in order to enable the copy program to transfer data to the appreciate destination (col. 8, lines 30-32).

8. THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

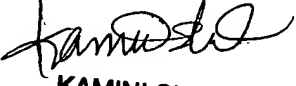
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9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hieu Le whose telephone number is (571) 272-3897. The examiner can normally be reached on Monday to Friday from 7:30 AM to 4:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rupal Dharia, can be reached on (571) 272-3880. The fax phone number for this Group is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 305-3900.

Hieu Le


KAMINI SHAH
PRIMARY EXAMINER
AU 2142